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The temperature at which soil samples are dried should be more carefully controlled and if the term "moisture ratio" were adopted we should have a more uniform basis of reporting results as well as of various analyses made by different investigators.

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THE IOWA ACADEMY OF SCIENCE. II

Chemistry and Agricultural Chemistry

Ames and Iowa Sections American Chemical Society

Iowa chemists and the war. A discussion: LEADERS: E. W. ROCKWOOD, IOWA SECTION, AND W. F. COOVER, AMES SECTION.

A consideration of some soil acidity methods: R. E. STEPHENSON.

Color effect of the furane nucleus: NELLIE M. NAYLOR AND RAEMER R. RENSHAW.

The determination of surface tension by the drop weight method: W. D. HARKINS AND F. E. BROWN.

The laboratory preparation of nickel carbonyl: J. S. COYE AND R. R. RENSHAW.

Studies of the gastric residuum III. The inorganic constituents of a composite sample of gastric residuum obtained from 70 apparently normal men, and their comparison with the inorganic constituents of a composite saliva sample obtained from the same individuals: CHESTER C. FOWLER AND JOHN H. BUCHANAN.

Studies of the gastric residuum IV. Amino acid nitrogen: RUTH B. CESSNA AND CHESTER C. FOWLER.

A study of over 70 twenty-four hour urine samples obtained from apparently normal women: ZELMA ZENTMIRE AND CHESTER C. FOWLER.

The relation of the composition of iron and mild steel to corrosion: J. S. COYE.

Methods for the determination of total nitrogen in soils containing rather large amounts of nitrates: R. S. SNYDER.

The number and action of molds in the soil: P. E. BROWN AND W. V. HALVERSEN.

The production of acid phosphate by composting sulfur and rock phosphate: P. E. BROWN AND B. J. FIRKINS.

The growth of legumes and the nitrogen problem: P. E. BROWN AND J. H. STALLINGS.

The nature of soil acidity: R. S. POTTER AND R. E. STEPHENSON.

The organic phosphorus of soil: R. S. POTTER AND R. S. SNYDER.

A study of certain green manure crops in making rock phosphate available in soils: ROSS L. BANCROFT AND B. J. FIRKINS.

A study of the comparative availability of different forms of phosphorus in nutrient solutions: ROSS L. BANCROFT.

The oils in cherry pits: NICHOLAS KNIGHT. An unquestioned source of oil in Germany in connection with the present war is cherry pits. The fruit is produced there in great profusion. We extracted the oils from 50 grams of the kernels of dried cherry pits and obtained 37.6 per cent. There were two varieties of oil. One, of which there was about 90 per cent., resembled almond oil, and the remainder seemed closely related to peanut oil.

Some problems of water supply for troops: JACK J. HINMAN, JR. A brief survey of methods which have been adopted at various times in the past for purifying water to be supplied to troops in the field.

The subject of chemical germicides is made the most important topic and particular attention is given to the use of chlorine and allied compounds. An extensive bibliography is appended.

The composition and digestibility of sudan grass hay: W. G. GAESSLER AND A. C. MCCANDLISH.

The occurrence and possible toxicity of molds in corn silage: ALVIN R. LAMB. The examination of a number of samples of corn silage, which contained mold which had grown in the interior of the silo, out of contact with air, showed the presence of two species, a red mold, *Monascus purpureus* Went, and a green mold, *Penicillium roqueforti* Thom. Aqueous extracts of the mycelium of these molds had no toxic effect on rabbits when injected intravenously. Large amounts of mold were given rabbits *per os* with no noticeable effect.

(a) *Deterioration of concrete silos due to the corrosive influence of silage acids.* (b) *Some observations on Kendall's method for the determination of iodine in thyroid preparations:* S. B. KUZIRIAN.

Some improved laboratory methods: W. S. HENDRIXSON.

Milk as the sole diet of ruminants: ANDREW C. MCCANDLISH.

Experiments with soy bean meal as a substitute in the army ration: ARTHUR W. DOX.

Further work on acid potassium phthalate as a standard in volumetric analysis: W. S. HENDRIXSON AND SERENO G. NORTON.

Geology

Contributions to the geology of southwestern Iowa: GEORGE L. SMITH. The author did considerable work in this field during the past year. The paper is somewhat critical on the superficial work done in the past in this difficult geologic field but the author himself is more uncertain of the geology of this part of the state than he was twenty years ago.

Progress report on recent investigations of the Pleistocene in Iowa: GEORGE F. KAY.

(a) *History of the investigation of the Pleistocene of Iowa.* (b) *Relation of the Wisconsin drift to the Iowan drift as revealed in Worth county:* EMMET J. CABLE.

Interstate affinities of our coal measures: CHARLES KEYES. That the several coal fields of the Mississippi valley should remain so long without even approximate correlation of the different parts is one of the surprising features of American stratigraphy. Recent critical comparison of the terranal successions of the Eastern Interior Coal-field of Illinois and of the Western Coal-field of Iowa and Missouri reveals a parallelism having closer stratigraphic affinities than those displayed in Missouri and Kansas, which are in the same field.

Salient feature of Iowa's tertiary drainage: CHARLES KEYES. Of the many traces bearing upon the character of the preglacial drainage of the Iowa region the most noteworthy, perhaps, is the trend of the leading stream-lines at high angles to the present river courses. The Old Moingona river, for instance, the precursor of the existing Des Moines River, coincided only in its lower reaches with the present water-way. The ancient river was also a much more pretentious drainage-way than Des Moines River, and headed far away in the Black Hills.

Mountain-folding in the far north: CHARLES KEYES. The geological cross section exposed in the gorge of Athabasca River, near the northern extremity of the Rocky Mountains, is from a tectonic angle, one of the most remarkable on the North

American continent. Insofar as the western world is concerned this section is unique in that it is the sole known expression of the fan-structure which so peculiarly characterizes the Swiss Alps. On Athabasca River only one half of the orographic fan is shown. On the opposite, or western, side of the Cordillera, along Frasier River, the pre-Cambrian slates, the dips of which are quite variable, portend the other limb of the fan.

Park sites along Des Moines valley: JAMES H. LEES. A number of geologically and scenically interesting localities along Des Moines valley which are suitable for state or district parks are described and illustrated.

The deepest well in the state: JAMES H. LEES. The well at Stuart, completed in 1916, is 3,121 feet deep, 111 feet deeper than the next shallower one, which is at Boone. It penetrates the New Richmond sandstone.

Some features of the Fort Dodge gypsum: JAMES H. LEES. Underlying the gypsum in some places is a fossiliferous conglomerate which probably has an important bearing on the age of the gypsum. Exposures of the gypsum under the drift show a remarkably irregular solution surface, whose age seems to be pre-Wisconsin. At one place the gypsum is heaved into mounds, evidently by expansion of the crystals through absorption of water. Solution channels are well shown here also.

A fauna from the Ste. Genevieve marls of Fort Dodge: A. O. THOMAS AND JAMES H. LEES. An interesting and very abundant fauna from red limy marls which have been classed as St. Louis, proves to belong to the Ste. Genevieve, which was formerly not known to extend into north-central Iowa. The fauna is largely brachiopods.

JAMES H. LEES,
Secretary

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